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C14-EC-404

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**BOARD DIPLOMA EXAMINATION, (C-14)**  
**MARCH/APRIL—2017**  
**DECE—FOURTH SEMESTER EXAMINATION**  
**DIGITAL COMMUNICATIONS**

*Time : 3 hours ]*

*[ Total Marks : 80*

**PART—A**

3×10=30

- Instructions :** (1) Answer **all** questions.  
(2) Each question carries **three** marks.  
(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. State sampling theorem.
2. Compare analog and digital communication techniques.
3. List four digital signal encoding formats.
4. State the advantages of CRC method of error detection.
5. State the need for digital modulation.
6. List the types of digital modulation techniques.
7. List the merits and demerits of TDM.
8. Define multiplexing.

9. What are the advantages of electronic telephony over manual telephony?
10. Mention the topologies of switched telephone network.

**PART—B**

10×5=50

**Instructions :** (1) Answer *any five* questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. (a) Describe the coding and decoding of PCM signal. 7  
(b) Write the advantages of delta modulation over PCM. 3
12. Describe adaptive delta modulation with block diagram and waveform. 10
13. Explain importance of hamming code in error detection and correction. 10
14. Draw and explain FSK demodulator using PLL. 10
15. (a) Draw and explain BPSK modulator. 6  
(b) List four advantages of BPSK. 4
16. (a) Explain cable modem. 5  
(b) Write the differences between FAX modem and DATA modem. 5
17. (a) State the need for a modem in data communication. 5  
(b) Explain Digital Subscriber Line (DSL). 5
18. (a) Explain FDM in telephony. 5  
(b) Mention various signals present on a local loop telephone line. 5

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